IN THE CLAIMS

1. (currently amended) Measurement ~~Cell that can be installed in~~ cell for an injection machine, ~~which comprises~~ the measurement cell comprising

a cavity formed between two removable and exchangeable internal metallic blocks equipped with a cooling and heating ~~system, and~~ system and laterally isolated from ~~the~~ bodies that hold ~~them~~ the blocks by a space of ~~air, which~~ air that restricts ~~the material's~~ transversal heat transfer in the cavity due to the presence of two polymeric bars installed on its lateral ~~edges, which allows~~ edges to generate a one-dimensional heat transfer regime on the central zone of ~~the~~ a plate of ~~the~~ material to be analyzed,

a set of fixed pressure and temperature sensors on the bodies ~~of the measurement cell and~~ connected to a data acquisition system to store ~~the~~ signals therefrom, ~~characterized since it further includes~~ and

a removable and reusable ~~device called removable Unit~~ unit of temperature sensors that possesses ceramic or metallic tubes assembled in a block carrier to guide and fix a group of at least three temperature sensors on the cavity also connected to the same data acquisition ~~system. These~~ system, the tubes ~~are~~ being supported by bodies ~~integrated to them or by removable bodies which~~ that enable the reuse of the plate formed as such with the temperature sensors inside to measure the heating curves when the measurement ~~Cell~~ cell is operated at high temperature with its heating system.

2. (original) Measurement Cell according to claim 1 characterized by possessing a cavity formed by two removable and exchangeable internal blocks manufactured in a metallic material with a thermal conductivity higher than 100 times that of the material to be studied.

3. (original) Measurement Cell according to claim 1 characterized by possessing a cavity formed by two removable and exchangeable metallic internal blocks equipped with passing perforations parallel to the surface in contact placed on two levels: The perforations of the level closest to the cavity allow the flow of a conventional attemperator liquid, and those farthest away house conventional high density electrical heating cartridges.

4. (original) Measurement Cell according to claim 1 characterized by possessing a cavity formed by two removable and exchangeable internal metallic blocks, whereby one of these blocks possesses a mini pressure sensor of a diameter no larger than 2.5mm installed on the temperature measurement zone of the sensors removable unit.

5. (original) Measurement Cell according to claim 1 characterized by possessing a cavity formed by two removable and exchangeable internal metallic blocks on its external lateral walls of the external blocks that contain them, for an air space at least 1mm thick.

6. (original) Measurement Cell according to claim 1 characterized by possessing a cavity formed by two removable and exchangeable internal metallic blocks, on whose internal edges parallel to the direction of the material's flow are installed two removable polymeric material bars that do not melt at the process maximum temperature and that thermally insolate the internal lateral edges of said cavity.

7. (original) Measurement Cell according to claim 1 characterized by possessing a cavity formed by two removable and exchangeable internal metallic blocks, fed by a chamber

formed between the external metallic blocks that produces a flat flow front of the material to be studied during the filling of the cavity.

8. (original) Measurement Cell according to claim 1 characterized by possessing a cavity formed by two removable and exchangeable internal metallic blocks, fed by a chamber formed between the external metallic blocks with a minimum depth of 2.5 times the thickness of the plate of the material to be studied.

9. (original) Measurement Cell according to claim 1 characterized by possessing a cavity formed by two removable and exchangeable internal metallic blocks, on which a removable Unit of temperature sensors can be securely installed.

10. (original) Measurement Cell according to claim 9 characterized because the removable unit of temperature sensors maintains said sensor stable in the exact pre-established position with a variation below 0.5% from its distance to the face closest to the cavity, in the cavity's central zone, during the entire time that the measurement lasts.

11. (original) Measurement Cell according to claim 9 characterized because the removable unit of temperature sensors is reusable for other measurements.

12. (original) Measurement Cell according to claim 9 characterized because the removable unit of temperature sensors allows to replace the temperature sensors in case these are damaged.

13. (original) Measurement Cell according to claim 9 characterized because the removable unit of temperature sensors allows la fixation of minimum 3 sensors.

14. (original) Measurement Cell according to claim 9 characterized because the removable unit of temperature sensors possesses ceramic or metallic tubes to guide the temperature sensors.

15. (original) Measurement Cell according to claim 9 characterized because the removable unit of temperature sensors possesses ceramic or metallic tubes with an internal diameter sufficient for the soft axial displacement of the temperature sensors during its installation or eventual change and with an external diameter in the measurement zone not above 2.4 times the diameter of the temperature sensors.

16. (original) Measurement Cell according to claim 9 characterized because the removable unit of temperature sensors possesses ceramic or metallic tubes assembled in a carrier block manufactured in a polymeric or ceramic material with enough mechanical resistance to support the pressure during the usage of the measurement Cell.

17. (original) Measurement Cell according to claim 9 characterized because the removable unit of temperatures sensors possesses ceramic or metallic tubes supported on integrated or removable bodies made of ceramic, polymeric or wood material whose resistance to compression is above minimum 2 times the maximum compression effort generated during the closing of the measurement cell.

18. (original) Measurement Cell according to claim 9 characterized because the removable unit of temperature sensors possesses ceramic or metallic tubes that can be supported on integrated bodies made of ceramic or polymeric material whose height is higher than the cavity's height without exceeding it by 1% and whose thickness is not above 1.5mm.

19. (original) Measurement Cell according to claim 9 characterized because the removable unit of temperature sensors possesses ceramic or metallic tubes that can be optionally supported by bodies manufactured in ceramic, polymeric o wooden materials, installed at a distance from the end of the temperature sensors that is not below 40 times its diameter.

20. (original) Measurement Cell according to claim 9 characterized because the removable unit of temperature sensors possesses ceramic or metallic tubes that can be optionally supported by bodies whose height is above the cavity's height not exceeding it by 1% and whose thickness is not above 1.5 mm.

21. (original) Method to discretely obtain values of the thermal diffusivity of a thermoplastic material, based on a minimum of three signals (triad) generated by the sensors of the removable unit of temperature sensors of the measurement Cell according to claim 1, under the typical conditions of industrial transformation of these materials, characterized as well because these values of thermal diffusivity satisfy the discretized differential equation for a one-dimension non-stationary conduction heat flow, just as normally used on computer programs for the simulation of these transformation processes.

22. (original) Method to obtain the thermal diffusivity according to claim 21 characterized because the points on the diffusivity curve obtained have an ordinate/offset of quotient values calculated from the discretized differential equation for a one-dimensional non-stationary heat flow by conduction, and as abscissa the mean value of the temperature recorded by the sensor of the center of the temperature triad.

23. (original) Method to obtain the thermal diffusivity according to claim 21 characterized because the points on the diffusivity curve are valid for the prevailing cooling rate on the plate of the material under study during the time interval between to consecutive measurements, recorded by the temperature sensor from the center of the triad.

24. (currently amended) Method to obtain the thermal diffusivity according to claim 21 characterized because the points on the diffusivity curve obtained are valid for the prevailing pressure on the measurement zone captured by the cavity's sensor of the measurement Cell ~~according to claim 4~~ characterized by possessing a cavity formed by two removable and exchangeable internal metallic blocks, whereby one of these blocks possesses a mini pressure sensor of a diameter no larger than 2.5mm installed on the temperature measurement zone of the sensors removable unit.

IN THE ABSTRACT

Please substitute the Abstract on the next, separate page hereof.